



SOUNDS FROM DANGEROUS PLACES

PETER CUSACK

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Chernobyl

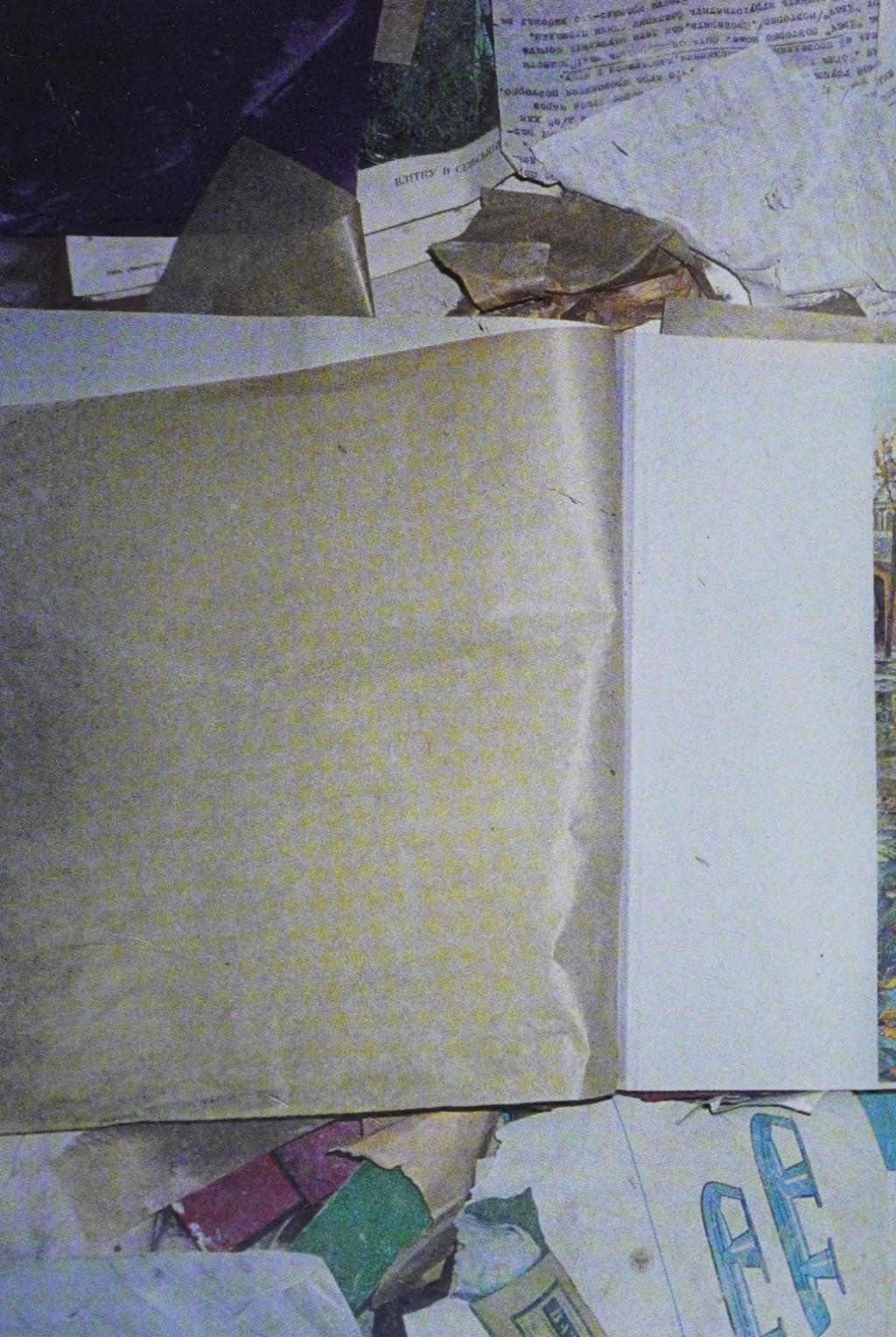
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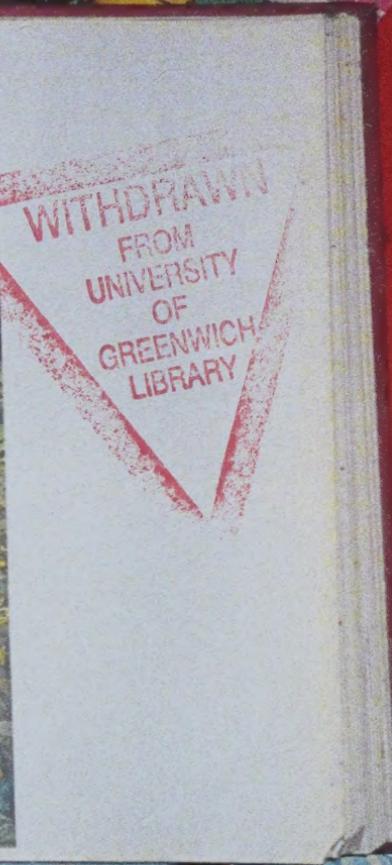
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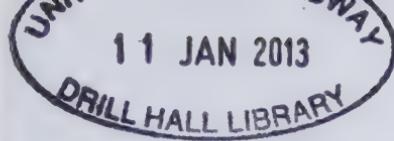
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Recent travels have brought me into contact with some difficult and potentially dangerous places. Most are areas of major environmental/ecological damage, but others include nuclear sites or the edges of military zones. The danger is not necessarily to a short-term visitor, but to the people who live there or through the location's role in geo-political power structures. Some are areas where extreme and hostile conditions have been created, in others the danger has been hidden or absorbed into the local economy. In yet others regeneration is underway.

Dangerous places can be both sonically and visually compelling, even beautiful and atmospheric. There is, often, an extreme dichotomy between an aesthetic response and knowledge of the 'danger', whether it is pollution, social injustice, military or geopolitical. The project asks, 'What can we learn by listening to the sounds of dangerous places?

Places visited include the Chernobyl Exclusion Zone, Ukraine; the Caspian Oil Fields, Azerbaijan; tributaries of the Tigris and Euphrates rivers in the Kurdish region of Eastern Turkey where many controversial dams are planned; North Wales, UK, where Chernobyl fallout still affects farming practice today and other UK nuclear, military and landfill sites. The two CDs in this volume present a selection of recordings from the Chernobyl exclusion zone plus other Chernobyl related sites in the Ukraine and from the Caspian Oil fields and UK sites. Those from Turkey are scheduled for a later release that explores the increasingly significant issues of global water use and abuse.

Peter Cusack
February 2012

CONTENTS

11 CHERNOBYL

11	<i>Introduction</i>
13	<i>The Chernobyl exclusion zone: thoughts and observations</i>
18	<i>The Chernobyl recordings</i>
18	<i>Sounds of work, electricity and radiometers</i>
18	<i>Pripyat</i>
19	<i>Samosel villages</i>
19	<i>Chernobyl's wildlife</i>
20	<i>Svetlana Tsalko</i>
21	<i>Recommendations</i>
21	<i>Reports</i>
21	<i>Chernobyl recent addenda</i>
26	<i>Track information, including transcription and translation of poems and traditional songs</i>

53 CASPIAN OIL AND UK SITES

53 *Introduction, including the origins of the sounds from dangerous places project*

55 *Track information*

55 *Caspian Oil, Bibi Heybat, Azerbaijan*

62 *Thetford Forest, Lakenheath airbase, UK*

64 *Chernobyl fallout, Snowdonia, UK*

66 *Domestic greenhouse gases, Uttlesford, UK*

67 *Landfill waste gases, Rainham, UK*

69 *Nuclear processing and power, UK*

70 *Bradwell, UK*

72 *Dungeness, UK*

74 *Sellafield, UK*

78 *Acknowledgments*

79 *Track lists with timings*

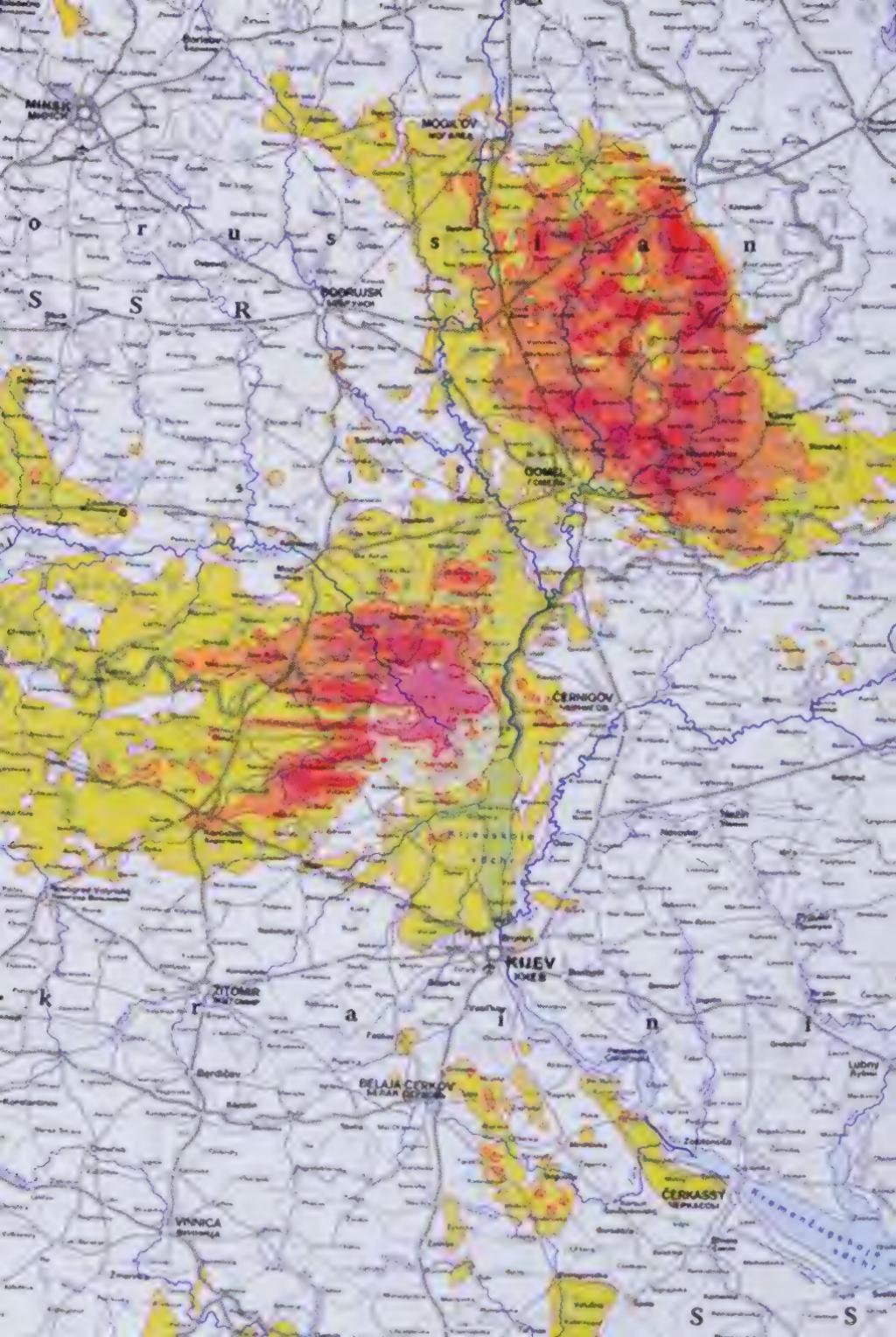


CHERNOBYL

Introduction

The Chernobyl disaster of 26th April 1986, was the realisation of all our fears of the nuclear industry, leading many countries to suspend their nuclear power programmes. Two and a half decades later, nuclear power is again reasserting itself, presented by governments and the industry as a 'saviour strategy'—a response to the far more serious threats of carbon emissions and climate change. We all face a proliferating nuclear future. What insights can Chernobyl and its aftermath offer in this new situation? What has happened to the environment, nature, the regions and the people directly affected by the disaster in the two decades since?

On two trips to Chernobyl in May 2006 and July 2007, I made many location recordings in and around the 'exclusion zone' in Ukraine. These include sounds of wildlife, radiometer bleeps, eerie rooms in the ghost town of Pripyat, work that still goes on around the nuclear reactors, and songs and poems of the traditional people of the affected area. Their stories are in many respects the least known of the disaster.



The Chernobyl exclusion zone: thoughts and observations

More than a quarter of a century after the world's worst nuclear accident, the 30 kilometre exclusion zone is still in place. Entry is strictly controlled, but obtaining a permit is relatively straightforward. Although powerfully present in a few well-known 'hot spots', radioactivity has otherwise long since returned to safe levels and is no threat to short-term visitors. Chernobyl's main sights—the sarcophagus covering the exploded reactor; the ghost town of Pripyat; ranks of rusting vehicles and helicopters used in the initial response—are now firmly on the tourist map. Coach operators run day trips from the Ukrainian capital Kiev with prices aimed at Western pockets, a level that excludes most Ukrainians.

Longer stays can be arranged through the Ukrainian Ministry of Emergencies. They charge for accommodation, food, transport and official guides as a package. In our case, we were picked up in Kiev, introduced to our guide on arrival in Chernobyl, shown around for four days and returned to the city after our stay. The driver and guide worked standard hours, but made it clear that extra arrangements could be negotiated privately. Scientists and officials have always visited the zone, but today it attracts many others: journalists, film crews, artists, pop groups cashing in on the Chernobyl factor for publicity videos, and the plain curious. While there, we measured radioactivity levels for ourselves with a borrowed radiometer. Except at the 'hot spots', readings were always low and completely normal.

But, of course, the zone is not normal. Its long isolation has created an environment and atmosphere quite different from the world outside. On the journey there, one passes new buildings and open farmland worked by labourers, machines and horses. In the zone, clear traces of agriculture and habitation remain, but nature has spectacularly re-colonised the territory. Thick green forest now covers the fields and pushes through abandoned villages. The quiet is profound, largely undisturbed by human activity. It is often very beautiful. Wild flowers are profuse in summer, but winter is bleak.

Away from the zone, the rest of the world has little awareness of its everyday realities. Instead its impact is on our imaginations. The original catastrophe, the initial secrecy, the heroism and sacrifice of those who brought it under control (who are celebrated in Ukraine as the 'Liquidators'), the evacuation of more than 200,000 people, the irradiation of five million, the spread of fallout to cover much of Europe and the area's subsequent isolation—all these have created potent mythologies and given real substance to our fears. Unlike any other event



of our age, Chernobyl symbolises the risks we face from technologies so powerful that they are completely uncontrollable when they fail.

But what exactly are the risks? The fear of radiation-induced cancer or genetic mutation is so universal that this may seem an absurd question. However, at a time when governments are planning major increases in nuclear power to combat carbon emissions, we clearly need and deserve a much deeper and more informed discussion of these issues. However tragic, Chernobyl offers this possibility. Since the accident it has been intensively studied. What understandings have emerged? Are our fears justified? Probably the biggest surprise and concern for me after these visits is the realisation of just how much uncertainty remains despite massive research efforts. Chernobyl's effect is so complex and widespread that few questions have been answered. Many never will be. Others can only be given as broad ranges or imprecise probabilities. On the seemingly simple issue of how much nuclear material remains inside the sarcophagus covering the exploded reactor, estimates range from 10% to 90%. Even the most respected put it between 35% and 60%. No-one is really sure.

There are many reasons for uncertainty. The scale of the accident was so large that collecting sufficient data is totally impractical. Long-term effects may take years more to become apparent. Understanding often depends on comparisons with the situation before the accident and adequate records from the past do not exist. Sometimes science itself is uncertain. The effect of low-level radiation on health, for example, is still very contentious. It is a crucial issue, as millions live in areas that received low-level fallout. Health predictions based on data from the atomic bombing of Japan seem not to have occurred in Chernobyl. Have they just not happened yet, or is the science insufficient and low-level radiation not the threat it is feared to be?

Information is very political. Governments, the nuclear industry, NGOs and special interests all have their own conflicting agendas and



interpretations. Chernobyl's uncertainties allow wide scope for different versions to be contested. Nowhere is this more apparent than in discussions of the overall number of people whose health has been, or will be, affected by Chernobyl. Heavyweight reports from the Chernobyl Forum—the body put together by the pro-nuclear International Atomic Energy Agency (IAEA), the World Health Organisation, governments and others to assess the research—give a figure of below 10,000. Greenpeace, which is anti-nuclear, speaks of millions in its report. Closer reading shows that these figures are not direct comparisons. The IAEA report (2005) covers only Ukraine, Belarus and Russia, whereas the Greenpeace report (2006) covers much of Europe. For both, conclusions are variously 'tentative', 'preliminary', 'awaiting further data' or 'impossible to assess'. Even these organisations find it difficult to progress beyond informed speculation.

My view now is that disasters of this magnitude are essentially unknowable. Even with intensive study the lessons can only ever be partial and their application to future events is problematic. Technologies that claim to harness such power will inevitably, at some time or another, place us in situations that are as unpredictable and uncontrollable as Chernobyl. And with the nuclear industry it need not be another meltdown or catastrophic fire. The links with nuclear weapons and ever-accumulating quantities of high-level nuclear waste are equally disturbing.

When disasters occur, the spotlight falls on the official response and its immediate effect. At Chernobyl, after the initial shock and denial, the first actions were heroic and monumental. The burning reactor was capped at great cost in lives. 50,000 residents from the nearby town of Pripyat were evacuated within days. The 30km exclusion zone was set up with the intention of resettling its entire population (approx 120,000). A massive clean-up was initiated. Arguments continue about how results were achieved, but few question the choices. How-

ever, 25 years later, the issues are the long-term effectiveness and sustainability of response policies.

The mass evacuation of exclusion zone villages, and many others in subsequent years, has had far-reaching consequences. At the time it was expected that those nearest the explosion would suffer the greatest impact, so the original decision was understandable. But it is now clear that fallout patterns are very patchy. Maps made three years after the accident show parts of the zone with very little contamination and vast regions outside (particularly in Belarus) with large amounts. Few immediate evacuations or major clean-ups took place in these areas. People stayed throughout the disaster and, although resettlements occurred later, many remain today. I have found little discussion in English of how these populations fared compared to the evacuees, or of the degree to which the evacuation succeeded in protecting people from the feared health risks.

Conversations we had in Ukraine suggest that the trauma of sudden evacuation caused more damage to some people's lives than the radioactivity would have done had they stayed. Certainly those we met in Stovpyagi—one of the villages built for Chernobyl evacuees—spoke, and sang, very emotionally about the pain of exile from their traditional homes and ways of life. Almost in passing the Chernobyl Forum report notes that, "paradoxically, people who remained in their villages (and even more so the 'self-settlers', those who were evacuated and then returned to their homes despite restrictions) have coped better psychologically with the accident's aftermath than have those who were resettled to less affected areas." This raises serious questions about the evacuation's effectiveness. It also focuses attention on the psychological impacts of the disaster. Later in its report the Forum states, "the mental health impact of Chernobyl is the largest public health problem unleashed by the accident to date." This is quite a statement. In the UK, discussions of Chernobyl and its implications predominantly concentrate on the physical consequences of radiation. If psychological and mental health problems are really the greatest concerns we should be hearing much more on these subjects.

Looking again at the fallout map it is clear how small the exclusion zone is compared to the total area irradiated. This emphasises, of course, that the great majority of people in lower-level fallout areas had no option but to stay. Resettlement of such numbers is quite impractical. I have no doubt that the same will be true of future disasters on this scale.

From the last paragraphs it may seem that the mood of our visits was of constant gloom. Far from it. There were sombre moments, but both trips were usually very enjoyable, often fun and always fascinat-

ing. The variety of sights and sounds to be recorded, or just appreciated, exceeded my expectations several times over. We were shown great friendliness and hospitality throughout, particularly by our hosts in Kiev. The abundance of nature in the zone was a pleasure to experience, especially in the warm summer sun. One cannot hope to get a picture of Chernobyl's complexities on two short visits, but chance meetings and unexpected observations add human details that are absent from research data and official reports. Here are four:

1. Chernobyl's special circumstances attract some pretty oddball characters as workers. So much so that they would make a captivating documentary in their own right. Three we met in a Chernobyl Town bar invited us for a barbecue and vodka. During a lively evening great laughter was had at the expense of the dosimeters issued to everyone working in the zone. These are meant to indicate how much radiation each person receives over a specific time. With broken casings and missing components the ones we were happily shown obviously hadn't functioned in years, but served nicely as one of the zone's standing jokes.

Our friends also showed off a much-loved Soviet relic—an extraordinary record player that spins discs vertically. They had found it with a small vinyl collection in a house abandoned twenty years ago. Incredibly it still worked, albeit with jaw dropping variations of speed. Its rendition of the Soviet anthem was awe-inspiring, the mangled tune floating into the black Chernobyl night to pass a sonic judgement on the disaster that surrounded us. Sadly the occasion was not recorded, the only time on the trip when I thought it unnecessary to bring a recorder.

2. We recorded quite a number of village songs in and outside the exclusion zone and I'm regularly asked how. It was, of course, because our Kiev friends were experienced folklorists and known to the villagers we visited. Hospitality is very warm and we arrived with bread, cheese, cooked meats, soft drinks and vodka. It was definitely appreciated. People soon added their own contributions and a party started. Singing was quick to follow. It is a great way to have a good time and hear local songs.

3. Dark blue berries and golden yellow mushrooms of summer make an attractive sight. They are sold by the bucketful along the roads bordering the exclusion zone. For villagers they are an age-old supplement to income and diet. Science has shown that plants and fungi absorb radioactive isotopes from the ground and concentrate them

particularly in fruit. So although radiation has long been back to normal significantly higher levels are still found in berries, mushrooms and forest game. Foraging in the Chernobyl woodlands, as elsewhere, is such an ancient right that nothing, including this knowledge, stops it. Our companions said that some of the appetising produce we saw was likely to be in Kiev restaurants by the following day.

The Chernobyl Forum report describes this as 'reckless behaviour' and ascribes it to widespread scepticism of official information about Chernobyl.

4. Graveyards in the exclusion zone are still in regular use. They are colourful and well kept. Headstones and wooden crosses are decorated with flowers and embroidered cloths that speak of the respect shown to elders and cultural traditions here. They are interesting places and our companions were very happy to find one. Their use has nothing to do with the disaster, but reflects the custom that people like to be buried close to their birth villages. Even though they may have moved away because of the accident their wish is to return after death. The authorities have allowed the practice to continue.

One of the more bizarre Chernobyl rumours we heard tells that the graveyards still measure considerably higher amounts of radioactivity than the surrounding areas. I don't know if this is true, but quite a few believed it and found the idea significant and strangely appropriate.

The Chernobyl Recordings

When faced with irresolvable issues on this scale, how can an individual artist, or any concerned citizen, respond? My answer has been to inform myself as far as is possible, but also to listen to the small voices, to the environment itself, to those whose personal knowledge of the area goes back generations, to those on the front line and to those whose lives have been changed forever by events over which they had no control. The Chernobyl recordings represent my aural journey. There are five main groups:

Sounds of work, electricity and radiometers

Pripyat

The town of Pripyat housed many of the Chernobyl nuclear plant workers and their families. Since its sudden abandonment, the natural forest has reasserted its dominance. Trees grow everywhere, around and through buildings, splitting concrete and forcing aside cracked asphalt. Unseen birds sing and call. Derelict blocks of flats, empty swimming pools and schools lie open to the winds that always blow. It

is an atmospheric and eerie place. Kindergartens are especially evocative. Picture books, lost dolls and children's shoes lie strewn in the crumbling rooms.

Samosel villages

The Samosels are the people who still live in the villages of the exclusion zone. Some managed to avoid evacuation but more returned later, mostly older people unhappy with life elsewhere. At first illegal, they were allowed to stay and now receive some government support.

To visit Chernobyl's ghost villages is a surreal experience. They are at once attractive and mysterious. Most are completely overgrown and one glimpses decayed, but still pretty, wooden houses through trees and dense saplings. The streets are leafy tracks, sometimes gloomy, other times dappled in sunlight. The quiet is absolute. Traffic and planes are unthinkable. Only birds and wind can be heard. But there is a strong sense of absence too, of those who lived here, of the disaster that destroyed any continuity with past generations, and the disruptions faced since.

For those who have returned, it has meant stepping back into traditional ways of life. Small plots of land are planted with potatoes. Poultry and cows are kept. Transport is by horse and cart. Vodka is home made. Village songs and dances are still remembered and valued. To an outsider this picture can seem idyllic, an example of a far closer and more meaningful relationship to nature than our own. It's an illusion. Winters are harsh, work in the fields backbreaking and severe poverty a constant threat. Alcoholism is prevalent, particularly amongst men, and essential services, including health care, are difficult to access.

Chernobyl's wildlife

In complete contrast to human life, nature at Chernobyl seems to be thriving. The evacuation of people has created an undisturbed haven and wildlife has taken full advantage. Animals and birds absent or very scarce for decades—wolves, moose, white-tailed eagles, black storks—have moved back and the Chernobyl exclusion zone is now one of Europe's prime wildlife sites. According to anecdote, some species left the area immediately after the accident, but returned within three years and have flourished since.

The extent and variety of the wildlife means that the natural sounds of springtime are especially impressive. Birds are impossible to avoid and there is one singing somewhere on virtually every recording I made. For me the passionate, species-rich dawn chorus that we heard every morning of our visit became one of Chernobyl's defin-

itive sounds. Chernobyl is also famous for its frogs and nightingales so night-time concerts were equally spectacular.

My notes are very enthusiastic about Chernobyl wildlife. However I can't make a comparison with what was there before. I tried to speak to one of the Chernobyl scientists about this but unfortunately did not succeed. The villagers I asked reported few changes but they were situated 20 or 30 kms from the explosion site in particularly rural areas where wildlife has always been rich. Other outside researchers and regular visitors said they had noticed definite increases in variety and quantities of wildlife sound. I guess the picture is complex and depends on exact details and location. The dawn choruses recorded were all in the derelict gardens of Chernobyl Town, which I'm sure would not have sounded like this when the town was fully occupied. My impression is that wildlife really has increased in the evacuated areas. The soundscape reflects this and the lack of traffic and other human sound accentuates it. In the areas that were fairly remote anyway there is probably less change. Today the zone certainly protects all within it from new developments and encroachment.

Svetlana Tsalko

Svetlana Tsalko is a remarkable woman, now in her 70s, who lived most of her life in Duminskoye, one of the samosel villages. She has recently moved, reluctantly, to another village where facilities are more accessible. Her knowledge of local folklore, traditions and the seasonal cycles of the environment is immense. Her response to the Chernobyl catastrophe was to start composing poetry based on acute observations of how the old relationships between people and nature were abruptly severed. As I understand it the poems have not been written down, they remain in her head.

My travelling companion, Misha Maltsev, and I met her in the company of Olena Chebanuk, Oleksiy Dolya and Mykola Semynog, all specialists in the region's folklore. They held a long and fascinating conversation with her about village rituals, dances, seasonal festivals and the natural rhythms of the year during which she recited some of her poems. It was a privilege to record the entire conversation. Four of her poems are on this CD. Ukrainian transcriptions and English translations are in the text.

Her poems speak of a relationship between humans and nature that is utterly interdependent. Both have a long understanding of each other. Fruit trees and birds are as saddened and disturbed by the sudden absence of villagers as the people are at being uprooted and forced to move to unfamiliar areas where their knowledge no longer applies. The understanding is expressed culturally as well as in the practicali-

ties of village life. It is a complete contrast to our view, which has seen nature as essentially separate from human existence and which has allowed us, until recently, to exploit natural resources with little regard for the consequences. Of course that view is now under intense challenge, particularly in the climate change debate. But the debate is still couched mostly in terms of hard science, economic mechanisms and geopolitics. The cultural dimensions of the issues are little discussed or acknowledged. At a time when we are trying to reshape our own relationship with the environment we can learn from people whose culture and practices have sustained them for so long.

Most Samosels are of the older generation. We can ill-afford to lose the knowledge that is dying with them.

Recommendations

I cannot recommend highly enough two books that give far more insight into Chernobyl than two short trips could possibly provide:

Wormwood Forest—A Natural History of Chernobyl by Mary Mycio (Joseph Henry Press, 2005) is a vividly described journey that follows Chernobyl's wildlife in the aftermath of the accident.

Voices from Chernobyl by Svetlana Alexievich (Dalkey Archive Press, 2005) contains heart-warming and heart-breaking oral histories from the ordinary and extraordinary people caught up in the disaster.

Reports

The Chernobyl Catastrophe: Consequences on Human Health, Greenpeace (2006) <http://www.greenpeace.org.uk/media/reports/the-chernobyl-catastrophe-consequences-on-human-health>

Chernobyl's Legacy: Health, Environmental and Socio-Economic Impacts, The Chernobyl Forum (2003-2005; second revised version). www.iaea.org/Publications/Booklets/Chernobyl/chernobyl.pdf

Chernobyl recent addenda

1. Almost immediately after finishing this essay I became aware of a potentially very significant recent book published by the New York Academy of Sciences. *Chernobyl: Consequences of the Catastrophe for People and the Environment* (Wiley-Blackwell 2010), is compiled by Alexey Yablokov of the Center for Russian Environmental Policy in Moscow, and Vassily Nesterenko and Alexey Nesterenko of the Institute of Radiation Safety, in Minsk, Belarus.

The book makes findings from over 5000 articles and studies published in Slavic languages available in English for the first time. Many of these will not have been taken into account by previous major re-

ports such as the Chernobyl Forum. The picture painted is salutary. The figures for deaths or sickness attributable to Chernobyl have been revised upwards 5 fold and the continuing consequences for health and the environment right around the northern hemisphere are spelt out as never before.

The book's credentials are impressive but I'm in no position to judge. For me it just adds to the belief that disasters of this magnitude cannot be known. The continuing emergence of significantly new or previously ignored work only emphasises how understanding on these matters will always be selective and heavily influenced by the most powerful competing interests.

2. On March 11th 2011 a catastrophic magnitude-9 earthquake and tsunami struck Japan's north east coast devastating the communities, towns and villages in its path and severely damaging the Fukushima Daiichi nuclear plant. And, in the year of Chernobyl's 25th anniversary, the world watched as the Japanese authorities battled to bring the stricken reactors under control. It is the second most disastrous nuclear accident in history.

Although the causes are quite different for those familiar with events at Chernobyl, there are disturbing similarities. Early reassuring announcements by company and government spokesmen were followed by further explosions and radiation increases. The media hailed the brave workers on site as heroes. The outcome of the disaster still rests on their shoulders. A 20km exclusion zone is in operation, now being extended as on the ground radiation measurements are made; tens of thousands have been moved out into makeshift accommodation. The announcement has been made that they are unlikely to return in the near future and entry into the zone is illegal. The situation remains very serious and long term uncertainty prevails.

Nobody knows how this situation will unfold, but it has revived the wider nuclear debate to some extent. Some politicians were quick off the mark. Germany immediately reversed its decision to extend the life of ageing reactors made the previous year and declared a new commitment to a 'nuclear free energy future'. The Chinese temporarily suspended part of their massive nuclear building programme and openly criticised the Japanese government for its inconsistent information. Whether these changes of heart will lead to lasting changes of policy remains to be seen. Even as we witness once again the catastrophic power of nuclear technology the industry's strongest argument—the imperative to combat carbon emissions—has not gone away. Neither has the desire of global political elites to embrace this most macho of technologies, despite all the warning signals. It is sure-

ly time for the kind of debate on nuclear power that we've never really had where all the risks, uncertainties and costs, as well as the benefits, are honestly and fully laid out for us to examine.

In their article *Fukushima's disaster always was a matter of when, not if*, Alister Scott & Jim Watson (the *Guardian* 18.3.11) quote a seminal study by Yale professor Charlie Perrow entitled *Normal Accidents* (1984). He analysed in detail the partial meltdown at Three Mile Island in 1979, as well as accidents in chemical plants, air traffic control, dam building and other industries. His conclusion was that in complex systems, no matter how effective conventional safety devices are, there will be forms of accident that are inevitable. This includes the nuclear industry and does not stop with Fukushima 2011.

It is also notable that one of the dangers at Fukushima is that of the spent fuel rods stored there for lack of anywhere else for them to go. It serves to highlight again the industry's biggest unsolved problem—that of the safe long term disposal of ever increasing amounts of high level nuclear waste.

3. Whilst working on *Sounds from Dangerous Places* and other field recording based projects I have started to use the term sonic journalism, the aural equivalent of photojournalism.

Sonic journalism is based on the idea that all sound, including non-speech, gives information about places and events and that careful listening provides valuable insights different from, but complementary to, visual images and language. This does not exclude speech but readdresses the balance towards the relevance of other sounds. In practice field recordings become the means to achieve this. Recordings can, of course, be used in many ways. In my view sonic journalism occurs when field recordings are allowed adequate space and time to be heard in their own right, when the focus is on their original factual and emotional content, and when they are valued for what they are rather than as source material for further work as is often the case in sound art or music. Sonic journalism can be specifically created or can refer to these qualities in recordings originally made for other purposes.







1. Radiometer, Kopachi

A radioactive 'hot spot'. What remains of the village of Kopachi lies buried under rough mounds of grass-covered earth, now growing birch trees and marked by small yellow and red warning signs. Used tyres litter the ground. The readings are high and as I walk towards the mounds they increase. At 1000 microroentgens I turn round.



2. Ferris wheel, Pripyat

The playground Ferris wheel, with its yellow gondoliers, is one of Chernobyl's iconic visual images. It was never used. The disaster occurred just five days before its official opening and it was abandoned with the rest of the town. Now it stands rusting and creaking in the wind.

This recording was made with a contact microphone that picked up the sounds and vibrations within its metal structure.



3. Power cable crackle

The first sound I recorded in the exclusion zone was a surprise. I had understood that the Chernobyl reactors had all shut down, so was not expecting the power cables to be crackling with use. It turns out that electricity now flows the 'wrong way', powering Chernobyl's never ending maintenance and clean-up work from the rest of the Ukraine's overstretched energy resources.



4. Pripyat wind and chaffchaff

Wind blowing through trees and abandoned buildings is a constant atmosphere.



5. *Kindergarten footsteps, Pripyat*

The floors and corridors in the kindergarten are covered with two decades of debris, flaked plaster, broken concrete, brick pieces, dry leaves and, in one room, dozens of glass bottles. Every footprint creates a different crunch or snap that reverberates off the bare walls. Those steps, plus wind, are the essential sound of the building.

6. *Cuckoo and radiometer*

Beside the Ferris wheel in Pripyat's playground a small handheld radiometer bleeps at around 250 micro-remits (higher than normal) and a cuckoo calls in the background. It is an ironic juxtaposition of sounds as both allude to sudden eviction. Cuckoos pirate other birds' nests, ejecting the eggs and chicks, and radiation forced the evacuation of all Pripyat residents. In Ukrainian folklore the cuckoo's call counts the years of one's life.

7. *Walking on glass bottles, Kindergarten, Pripyat*



8. "People, where should I look for you?"

Poem by Tsalko Svetlana

I would walk out of my house,
And stand on the threshold.
Looking around me. And the tears would start.
Nightingales are singing in the green field.
The cuckoos are calling,
Calling and asking,
"Why are you leaving us?
The crane is circling above the ruined house
Circling and asking,
"People, where should I look for you?"
Don't look. You won't ever find us.
All driven away like water
That disappears from the field.
O God why do you punish us so,
Sending us away from our homeland
To a foreign country?
Here at home I know every place I see.
Where ever I look I find nourishment.
In my native woods there are red berries.
Bread and mushrooms are food for us.
But in the foreign land the sun comes up
In a different sky.
And brings to us settlers such sadness.
What are we to say, what are we to do,
Who should we ask, what should we expect?



“А де ж вас, люде, шукати?”

Вийду я з хати, стану на порозі,
Подивлюсє навкруги—заливають сльози.
Соловейки щебечуть в зеленому лузі,
А зозульки куют, куют і питают:
“А чого це ви, люди, нас покидаєте?”
А лелека кружляє круг розкиданої хати,
Кружляє й питает: “А де ж вас, люде,
шукати?”
Не шукайте—не найдете ви нас ніколи,
Роз’їхались, розішлись, як весняна повінь.
А за що ти, Боже, нас так сильно караеш,
Що з родного краю в чужий отправляєш?
У родному ж краю, куди ж гляну—знаю,
Куди ж подивлюсь—там і покормлюсь.
В лісі родному ягода червона,
Гриб і сироїжка—це ж наша корміжка
А в чужому краю сонце не там сходить,
На нас, переселенцов, смуток наводить.
Що нам казат, що нам робит,
У кого питат і чого нам ждат?

Цялко Світлана











9. Music room, Kindergarten, Pripyat



10. Walking on books/radiometer, Kindergarten

In some rooms school books have fallen to the floor, their pages open to show pictures of wolves, historic kings and queens, a portrait of Lenin.

Walking on books is something I would never dream of doing, but in these rooms it is unavoidable. The cracking and compressing of paper here are some of the most poignant sounds I have ever recorded. The radiometer beeps around 14 microroentgens—a very low reading.



11. Walking on books, Kindergarten





12. Hissy machine, Laundry, Pripyat



Pripyat is not entirely abandoned. The laundry still washes the clothes of those working at the Chernobyl plant in big, old, noisy machines. Some of the laundry women have worked here since the disaster and are happy to have done so.

13. Bar, Friday night, Chernobyl Town

The name 'exclusion zone' conjures images of an area totally without people. This is certainly not the case. Thousands are still employed for maintenance, clean-up work, transport, forestry, research and all the services needed in support. Chernobyl Town is the zone's administrative and accommodation centre. Many people stay and work there. Families are not allowed, so there is a general exodus at weekends. Friday is a quiet night.

This bar has a CD player with a tendency to skip. The barman encourages it onwards with a smart slap.

20

PT
44

14. Chernobyl nightingales, Chernobyl Town

Chernobyl was always famous for its nightingales (strictly speaking thrush nightingales). Now they sing in profusion from the town's abandoned and overgrown gardens. The loudness and clarity of these voices is sharpened by the absolute quiet of night in the zone.

15. Dawn chorus, Chernobyl Town

The same gardens are also rich with daytime birdsong. Species heard include cuckoos, thrush nightingales, blackcap, great tit and hoopoe.

16. Woodfire, hens, early morning, Chernobyl Town

Workers can ask for permission to stay in an abandoned house, so some of the more intact cottages and gardens are being restored.



17. Horse and cart greeting, Lubianka village

Lubianka is about 20 km from the reactor site. Before the accident it was a prosperous village with 450 inhabitants. Now 8 samosels live there. One or two have taken to supplementing their income by welcoming tourists into their homes for a small sum, preferably dollars—an arrangement facilitated by some Chernobyl guides.

The building in the photograph to the left is the former bank and post office.



18. Turkey, Lubianka village



19. Chernobyl evacuee's lament, Stovpyagi village

Conversation with an elderly former Chernobyl resident now living in Stovpyagi

Stovpyagi is about 100 km the other side of Kiev from Chernobyl. It is a new village built to house exclusion zone evacuees. Most seem resigned to their present circumstances but would much prefer to be back in their original villages. The elderly man talking here is in poor health. Even after many years he misses his home village deeply and wants to return there. Tears were in his eyes as he spoke. He is scathing about the Stovpyagi houses, describing them as coffins.

CR: Chernobyl resident; MM: Misha Maltsev; HC: Helena Chebanuk

MM: What was the name of the village you came from?

CR: Buda, Varovichi, they threw us out of there. As soon as radiation started advancing, they threw us out, literally, because there was nowhere to move us to.

CR: Oh. It's worse here than it was there. Some people are still living there.

(Woman passing by: Come along I will wake her up now.

CR: What's up?

Woman: I need to see Nina to check up on the chickens.)

MM: What are the differences between the place you were living in and here?

CR: The difference is that we have already spent some time there in the radiation, absorbed the radiation and then they relocated us here. This is how it turned out.

MM: No, I mean nature, what kind of soil, is it completely different here? What kind of land was there, there was Polessie. [“Polessie” originates from the word “les”—meaning wood. It is the name of the region that Chernobyl is in.]

CR: There was Polessie, there was nature and all, completely different nature.

MM: Forest, yes? And here it is Steppe?

CR: There was forest you understand, completely different climate.

And here, here I can't work it out. And here it is getting in the way all the time it's hindering. Got no damn health at all.

MM: He is interested in sounds, he is asking if there are sounds that you are missing.

CR: I miss nature, and here...here life is...even that is wasted.

I don't have any strength. It has taken away everything, the hands, the legs, and, and all of the body. There I felt myself completely different. And also the radiation has contributed. It's not even worth talking about. If one cannot walk anymore, no health, but still have to work,



still one wants, as they say, to live a little bit more, and also, one wants to plant a few potatoes.

MM: Where do you plant, do you have a vegetable garden?

CR: Here, right here, that's enough of a plot for me. They were giving out more land for those who wanted extra. As for myself, I have ploughed some here, that's enough for me. It's even too much to look after. The health is failing, can't walk...what's the point of talking?

And they stuck us here and it's such a...The houses they have built here...those are not houses, they are coffins, little tiny coffins. It's a dump. There is nothing to get interested in around here.

MM: Are there people here who want to go back?

CR: I would go myself, if I had health. It is just that I have no more strength, and there is nowhere to go...

The filthy radiation and that time that we spent in it. It would have been good to go back otherwise. But, you see, they have made it filthy everywhere, all the land and the woods. Now try and work it out.

MM: And in the village that you are from , was there a high radiation level?

CR: Yes.Although you can't call it a village anymore. There were people who went there, although I didn't go myself, and half of it was burnt down, and the rest had fallen down by itself.



20. "Oh My Beloved Village"

Oh my beloved village,
The silence of your marshes,
The breadth of your skies,
Your songs,
And your fields caressed by the sun.
With your bread and blossom and
your ancestors.

Warm my soul,
My beloved village.
Hay-making began in the village.
The whole village sang during the wedding
season.
And the wind blew across the living
horizon.
With your bread and blossom and
your ancestors.

Warm my soul,
My beloved village.
With my beloved village,
With dawn and morning dew,
I will carry my love for the land
my whole life long.
It has given me all that I know.
With your bread and blossom and
your ancestors.

Warm my soul,
My beloved village.

Ігріє рідне село
Тишиною лугів
І роздоллям небес
І піснями гаїв
І полями, де сонячне світить чоло
І полями, де сонячне світить чоло
І хлібом, і цвітом,
І прадідом дідом
Ігріє душу село,
Мое рідне село.
Встало рідне село
На жнива й сінокіс,
Заспівало село



На весіллях дзвінких.
По просторах живих
Вітерцем повело.
І хлібом, і цвітом,
І прадідом дідом
Гріє душу села,
Мое рідне село.
Будить рідне село
І зорю, і росу,
Я любов до землі
Все життя пронесу.
Все, що бачу навколо
Все в мені проросло.
І хлібом, і цвітом,
І прадідом дідом
Гріє душу села,
Мое рідне село.

21. Sarcophagus work



The huge concrete sarcophagus erected with such heroism and human cost to contain the exposed reactor core is a truly impressive structure. For more than two decades it has done its job, but cracks occur and it needs constant repair. The long term plan is to build a new one that completely encloses the old. No one really knows how much nuclear material remains inside. Some estimate 90%; others say 10% believing that most blew out in the original explosion and fire.

22. Power cable crackle





23. *Summer grasshoppers, summer wind*

Duminskoye village lies just outside the exclusion zone. Nevertheless it was still evacuated. This happened if the contamination was judged too high or if setting up the zone isolated remote villages beyond viability. Today a few people still live there. In summer it is beautiful, surrounded by peaceful woods and lush grass fields with profuse wild flowers and ponds covered in water lilies.



24. "Three Cossacks", Duminskoye village

Sung by Tsalko Valentina Vincentjevna, Manzulya Olga Grigoryevna, Manzulya Ivan Stepanovich (and the dog).

The Cuckoo
Sings in the garden,
Hey, there came on a visit
Three Cossacks to the girl.



One Cossack takes the saddle from the horse,
The second binds the horse,
Hey, the third stands on the road
—Good evening he says.

—Good evening, old mother,
Let me drink some water.
It is said the girl is lovely,
Let me watch.

25. "How Can My Sweetheart Reject Me"

Sung by Tsalko Valentina Vincentjevna, Manzulya Olga Grigoryevna, Mykola Semynog (accordion)

Swing the accordion wider
Let the girls sing
Let everyone in the world know how Duminskoye lives



I fell in love with the accordionist
But didn't marry him
Father didn't have enough money

To love an accordionist
Ones needs to be clean
But with such poverty, what kind of love can there be?

Accordion player I'm falling in love with you
But if you are married
Then—sorry

How can a black horse untie itself from the tethering
post?
How can my sweetheart reject me?

Ivan, at the end, says “never”.



26. Wild boar

Wild boar have flourished inside the exclusion zone. These were enclosed in a pen (I do not know why). A sack of green apples had been left there to feed them.

27. White stork chicks screeching in the nest, Lychmany village

In Chernobyl, as across Europe, the age-old relationship between humans and storks is integral to local folklore. Stork family life is part of human village gossip. Their departure for the winter migration and return in the spring are highly significant dates in the ecological calendar.



28. White stork chicks, bill tapping, a distant song

Storks display to each other by the rapid tapping of their bills.



29. "Copper Tubes", Lychmany village

Sung by Peshko Anna Stepanova, Tolokevich Maria Fedorovna, Stashkevich Malanya Trofimovna, Stashkevich Maria Ivanovna, Shwab Luybov Moiseevna, Sosnovskaya Zoya Ivanovna.

My love is somewhere
On the cast plant
What does he do?
He makes copper tubes.
Two doves flew out
And broke copper tubes



30. "When You Are a Widow", Lychmany village

Sung by Peshko Anna Stepanova, Tolokevich Maria Fedorovna, Stashkevich Malanya Trofimovna, Stashkevich Maria Ivanovna, Shwab Luybov Moiseevna,

One hero comes
Sits at the table
The second hero talks
With the housewife:
—Tell me, housewife,
When did you become a widow?
—From the year 41,
When the war begun
In the year 41 as the war has begun
I accompanied my husband and gave my son.



31. Golden Oriole beside radioactive trucks

One of Chernobyl's main tourist sights is that of the dumped trucks, fire engines and helicopters used at the time of the disaster and now rusting in a field still awaiting safe disposal. Close up they are highly radioactive, but they can be viewed from a distance. The golden oriole is a beautiful yellow and black bird with a lovely liquid song phrase. The occasional work sounds are of the vehicles being cut into small pieces. These will then be buried in secure sites within the exclusion zone.

32. “Quiet Conversation”

Poem by Tsalko Svetlana

The green oak sways in the wind
And quietly the wind is asking
“Tell me oak tree where did the people go?
There is no one here in the village.”
“I have lived in this world for more than a hundred
years
I’ve never known people move away like this
And abandon their houses.”



I have come out of the house and I’m standing there.
I can hear a quiet conversation here in the garden.
An old pear tree is talking to someone.
She’s talking to someone, she’s asking an apple tree.
“Do tell me apple tree, what has happened.
I have flowered, I have ripened and my pears have
fallen.
They have fallen and rotted, not needed by anyone.”
“How is it, pear tree, you have not been able to see?”
The Apple tree so sad,
“Don’t you hear the wind howl, banging the doors
In empty houses and shutting doors in empty homes.
There have been no people for a long time now”.

There in the corner a plum tree has bent low
Has bent so low, full of tears.

Тиха розмова

Зеленого дуба вітер колихає,
І стиха питає:
“Скажи мені, дубе,
Де поділись люди,
Що в селі немає?
Я больше ста років
На світі проживаю,
Ну не пам’ятаю,
Щоб люди повиїжджали,
І хати покидали.”
Вийшла я з хати,



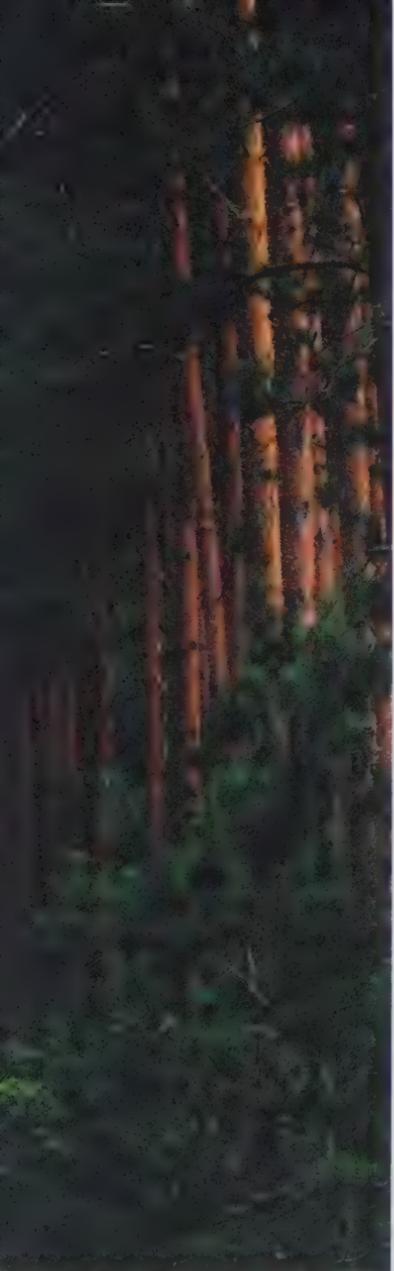
Стала да й стою.
Чую в садочку я
Тихую мову.
Груша старая
З кимсь розмовляє,
З кимсь розмовляє,
В яблуні питає:
“Скажи мені яблуню,
Шо це таке стало,
Я й зацвітала,
Я й дозривала,
І грушка упала,
Упала й розбилась,
І нікому
Не знадобилась.”
“Як же ти, груша,
Небачити стала”,
Яблуня груші
Так одказала,
“Хіба ж ти не чуеш,
Що вітер завиває,
В порожніх хатах
Двері закриває,
А людей
Давно вже немає.”
Там у куточку,
Слива схилилась,
Слива схилилась
Сльозами залилась.

Цялко Світлана

33. Radiometer squeaky hinge, Opachichi village

Beside a once pretty, now derelict, wooden house in the village of Opachichi. A window hinge squeaks in the wind. The radiometer bleeps at 12 microreorientgens—a very low reading, no more than the natural background level.

34. Squeaky hinge, Opachichi village



35. “Black Wave”

Poem by Tsalko Svetlana

We have lived in Duminskoye
Lived here and built lives here
Our roots reached down and held us tight to
the soil

The root is so deep, if an eye is to glance.
The Chernobyl wave has covered us all
And brushed against our roots with its
black
wave

And our roots have started to dry up
And people started to seek refuge
Leaving the houses they were born in
And flee into the world

Чорна хвиля

Жилі ми в Думінських
Жилі, обжилися.
Корінням за землю,
Крепко взялися.
Корінь так глибоко,
Як загляне око.
Чорнобильська хвиля
Усіх нас накрила.
І чорним крилом
Коріння зачепила.
І наше коріння
Стало подсихати.
А люди ратунку шукати,
Кидат родни хати
І в світ виїжджати.

Цялко Світлана



36. "Ukraine's Politicians"

poem by Tsalko Svetlana

Ukraine is the Mother.
But we do not have our own father
A father looks after his children,
While the stepfather looks away.

Ukrainian people, how do you live, how are your lives?
The Ukrainian parliament is fighting for you
They are fighting and shaking their fists
While they stuff their pockets with whatever they can
They rip you off, people, strip you to the bones.
Wake up bureaucrats, what will happen next?
Look at how people are wasting away.

Українські політики

Український народе, як-то ви живете?
За тебе ж уся Верховна Рада б'ється.
Вони б'ються, в гори руки пудимають,
А свої кармани чим буольш набивають,
А з тебе, народе, до косток обирають,
Схаменітесь, чиновники, що ж дальше й буде,
Подевлеться, як гинуть люди.

Цялко Світлана



37. Chernobyl frogs

Midnight chorus. Chernobyl is a marshy area as well known for its frogs (and mosquitoes) as for its nightingales.

Dear People!

Pay respects to those who lived here through the joys and the hardships. And who will never return here again.









~~ЧОРНБІЛЬ~~





CASPIAN OIL AND UK SITES

Introduction

*We drove out of town, to the bay of Bibi-Eiybat, where
black machines tortured the oil drenched earth*

—Ali and Nino by Kurban Said

The first recordings on this CD were made in 2004 at the Bibi Heybat oilfield, on the Caspian shore just outside Baku, the capital of Azerbaijan. It is one of the oldest oilfields in the world and its commercialisation by Europeans in the late 19th century signalled the start of the modern petroleum age. The Rothschilds and the Nobel family, of Nobel Prize fame, made fortunes here. Extensively exploited during the 20th century by the Soviet Union, Bibi Heybat is now controlled by the Azeri state with massive investments from multi-national oil companies.

It is also one of the most polluted spots on earth. Both sea and land are saturated with oil. The smell is powerful. Villages and a city are nearby. Refugees, denied lands elsewhere, graze animals on the few blades of grass that grow amongst the black pools. Fish caught from the contaminated water are eaten. But despite the environmental devastation and social injustice, Bibi Heybat is one of the most photogenic and sonogenic places I have ever visited. It looks and sounds fantastic. The area is covered with hundreds of drilling rigs and nodding donkeys, many of which have decayed into twisted sculptural heaps of blackened metal. The light is special, the sky and the sea are blue, the soil is yellow where it is not black, and the various structures reflect brilliantly in pools of oil waste. The sound is created by the nodding donkeys that still work. Each has its own repetitive cycle of hums, squeaks and groans that together make up the rich, constantly evolving soundscape.

The quote from the Azeri writer Kurban Said is taken from his best known novel, *Ali and Nino*. He wrote it in the 1930s, but it describes the political turmoil of the First World War in Azerbaijan in the years before the Soviet take over. The life of Kurban Said himself was sensational and is captured in the wonderful book *The Orientalist* by Tom Reiss.

Most of us whose daily lives are so oil-dependent have little knowledge of the places and technologies of oil extraction, and only a hazy

notion of the industry's effect on the local environment and people. I was shocked at the extreme dichotomy I experienced between my aesthetic pleasure at the stunning sights and sounds of Bibi Heybat and the knowledge of its environmental, social and political impacts. *Sounds from Dangerous Places* was born from these contradictions. Having chanced upon an environment so completely transformed by a century of ruthless exploitation that an entirely new one, with its own unique visual and sonic character, now exists in its place, I began to wonder if similar processes were occurring elsewhere. I was particularly interested in how environmental changes are revealed in the soundscape. This led me to research the nuclear catastrophe of Chernobyl and the rivers of Eastern Turkey where extensive dam building alters local climate and drives thousands of people from their lands and livelihoods. I also visited UK sites where, on a smaller but still significant scale, sound indicates not only environmental dynamics but, sometimes, the responses of people involved.





Caspian Oil, Bibi Heybat, Azerbaijan
Recorded March and October 2004



1. Oil field atmosphere

The sonic centre of the oilfield, where all individual sounds coalesce and none dominates.

2. Oil work tune 1

As a chugging engine pulls sections of pipe from the ground to be renewed, workers tap them with a heavy spanner. These tuneful melodies resonate around the oilfields and give these places their utterly characteristic signature tune. Perhaps the sound indicates the pipes' condition or maybe tapping just helps smooth its removal.

3. Oil work tune 2

4. Oilfield soundwalk 1

As one walks around the oilfield the unique sound of each nodding donkey appears or recedes as one passes. With planning it is possible to choose a sonically interesting route. Longer gaps between the events have been edited out so this track is not quite realtime. Otherwise the sounds and their order are as originally recorded.









5. Oil work tune 3 (from middle distance)



6. Caspian sea wash



7. Drilling

8. Nodding donkey extreme close

9. Oilfield soundwalk 2

The route for this soundwalk crosses that of track 4 but is otherwise different. There is a six month gap between the two recordings. Little has changed in the time. This soundscape has been slowly evolving for decades and seems set for years more.





Yanar Dag (fire mountain)

Azerbaijan has for millennia been known as the 'land of fire'. The natural gas seams are so close to the surface that in places they leak from the ground and catch fire. Such fires can burn for years. Yanar Dag, close to Baku, has been alight since 1957. It is an amazing spectacle in a bleak and polluted landscape.



Icheri Sheher, Baku, Azerbaijan

Icheri Sheher is the old city of Baku. Ancient palaces, balconied houses and the central mosque are surrounded by fortress walls. On a warm evening the sounds of family life spill from open windows and doorways into the maze of narrow streets. Fuelled by the post-Soviet oil boom international oil companies, corporations and embassies have moved into the old city, transforming medieval houses into headquarters, bringing in traffic and reconstruction noise. The displaced people take their sounds and histories with them.





10. Accordion, kids and a dog

Baku is a fascinating place for music. Its internationalism and geographical position make it a genuine crossroads where musical cultures, global pop to ultra-traditional, from the Caucuses, Turkey, the Middle East, Europe, America, Central Asia, Iran and Russia clash, compete and combine. People like to sing or play, and practicing is often heard.

11. Nard from the window

Nard (backgammon) is the national game, very popular here as it is throughout the region. The slapping of counters onto the board can be heard everywhere.

12. Narrow street atmosphere





13. Reluctant piano

The people of this house very kindly allowed us on to their roof to see over the old city. Strangers proved all too distracting to the young girl trying to practice.

14. Call to prayer/building work

An embassy is being renovated beside the central mosque. Azeri Islam (predominantly Shiite) has revived since the end of the Soviet Union.

However there seems little inclination to follow neighbouring Iran's model of an Islamic state. In this recording some people wait for the call to prayer to finish before starting their cars, others work throughout.



UK Sites



Thetford Forest, Lakenheath airbase

The areas around airbases and Ministry of Defence land are often exclusion zones for people where wildlife can thrive.



15. Plane deer

Two giant USAF transport planes coming in to land over Thetford Forest at 2 am. The barking sounds are roe deer and possibly a fox. This was recorded in July 1991, just at the end of the Cold War, but the base still operates today, playing its role in Afghanistan, Iraq and current global conflicts.







Chernobyl fallout, Snowdonia, UK

In 1986 Snowdonia, North Wales, received the largest amount of Chernobyl fallout in the UK. Sheep farming is still affected today. Every single animal is monitored for radioactive isotopes by teams from the Food Standards Agency before they are allowed to go to market. If measured above the designated limit they are taken out of the area to graze on non-affected land until safe levels are reached. Measurement is by a radiometer (Geigercounter) that bleeps after the 10 seconds needed for a reliable reading. All these recording were made in July 2006.

Snowdonia is one of the UK's most popular holiday areas famous for unspoilt mountain scenery and wildlife.

16. Snowdonia Sheep



17. River flow—Aled Isaf Reservoir



18. Dragonfly wings

Dragonflies hawking along the edge of the Aled Isaf Reservoir sometimes pass so close to the microphone that the rattle of their wings is briefly audible.

19. Kids on holiday

20. Radiometer sheep 1

21. "Certainly by September 1986"

A sheep farmer tells of the official information he received at the time of the Chernobyl disaster.

22. Radiometer sheep 2





23. Official secrets



24. Snowdonian woodland

Woodland soundscape with crows, coal tits, nuthatch and buzzard. Snowdonia is used daily by jets on low flying exercises. In the Chernobyl fallout area the sound is a reminder of the nuclear industry's military as well as its civilian role



Domestic greenhouse gases, Uttlesford, UK

The borough of Uttlesford lies in Essex, just outside London, and includes Stansted airport in its boundaries. Its sights and sounds are completely normal for an archetypal home county and prime London commuter area. In 2001 it was named by The Sunday Times as the best place to live in England and Wales.

In May 2006 a British Gas report lists the borough as the 'area producing the highest domestic CO₂ emissions per household across all local authority regions.' Apparently each home produces an environmental impact equivalent to flying 17,000 miles a year.

Reasons given were the lowest connection to gas in England meaning above average electricity use, older poorly insulated housing stock and oil consumption that is four times the national average. In response, the council is quoted as saying 'Uttlesford is a very affluent area and that has a knock on effect in high carbon emissions. We try and lead by example but there is nothing else we can do to get people to save energy. It's not illegal to waste energy, unfortunately.'

25. Bell ringing practice, Easyjet, SUV

Great Easton village. Planes taking off from Stansted climb directly overhead.

26. Picturesque Thaxted

A quiet street in the town of Thaxted with an anxious blackbird, cat, wood pigeons and collared doves. Both places are in the forefront of the opposition to expansion plans at Stansted airport.



Landfill waste gases, Rainham, UK

Rainham landfill site, just east of London, is one of the UK's largest and has been in use for about 100 years. The A13 road and the Eurostar run nearby. From a speeding train it appears as a strange hill dominating the otherwise flat marsh and industrial landscape alongside the River Thames.

Decomposing landfill produces quantities of methane (between 8 to 10,000 cubic metres per hour at Rainham). Methane is a significant greenhouse gas, 23 times more powerful than carbon dioxide; it can also cause explosions and fires if allowed to mix with oxygen in the air. At Rainham the gas is managed through a network of underground pipes that siphon it to an adjacent power plant to generate electricity. The process is believed to be around 85% efficient on the areas of the site no longer being worked. Ten years ago the gas was burnt-off as flares. The current system is visible as odd, slightly sinister, groups of black pipes, dials and valves, some with numbers, others with warning signs. When gas flows they hiss, intermittently or smoothly, each at a different pitch. Recorded December 2007

27. Walking on landfill





28. Methane flow 7



29. Methane flow 1

30. Methane flow 31

31. Methane flow 10

32. Landfill atmosphere, distant





Nuclear processing and power, UK

The UK has had nuclear power since the 1950s but expansion plans were dropped after the Chernobyl disaster in 1986. Two and a half decades later it is being pushed as a 'clean' technology essential to combat climate change. The government has recently announced a series of new nuclear power plants in its attempts to reduce UK carbon emissions. All of the places recorded here have existing plants. Sellafield, Bradwell and Sizewell are proposed locations for the next generation of reactors. The photograph above is of Sellafield.



Bradwell, UK—decommissioned nuclear power station

Bradwell nuclear power station was decommissioned in 2002. Even when closed and the fuel removed, the site remains contaminated for decades, or longer. Bradwell cannot be demolished until 2095. The safe long-term storage of high-level radioactive waste is probably the industry's, and our, greatest problem. It remains lethal for hundreds, if not thousands, of years. A satisfactory solution is far off. As nuclear plants proliferate so will the amounts to be disposed of. Recorded August 1997.



33. Glistening mud surface



34. Sea slosh in mud channels

St Peter's, Bradwell, was built in 654 AD. Services are still held there and it is used by the Othona community who live nearby.





36. Bradwell beach

37. Bradwell nuclear power station

Recorded in 1997 before the power station had been decommissioned. Today [May 2009—the date of the photographs] it is quieter and outlying buildings show clear signs of disuse. Maintenance and security continue. In November 2009 it was announced that the site will be revived. One of the new generation of nuclear power plants is to be built here.





Dungeness, UK

38. Dungeness nuclear power station

Recorded May 2009





Sound mirrors, Denge, UK

Within sight of Dungeness these concrete structures are now much appreciated as military relics from the 1930s. Their parabolic shape was designed to detect distant sounds from over the English Channel and give early warning of incoming aircraft. They never worked and were quickly superseded by the invention of radar.





Sellafield nuclear power and processing plant

Sellafield, on the Cumbrian coast, is the flagship of the UK nuclear industry and its largest site.

Security at Sellafield is very obvious. My belongings were searched twice in a couple of hours by armed police while there. They informed me immediately that photography and recording were perfectly legal, but that they wanted to check me out anyway. It is possible to get permission, although I hadn't on this occasion. From the conversation here, and those at similar sites, it seems that environmental activists are a main concern. I was repeatedly asked if I was a member of Greenpeace or a similar organisation. My interest in environmental sound was met with polite incredulity.





39. Sellafield winter atmosphere

It has taken a long time but after visiting UK nuclear plants and Chernobyl I have only recently appreciated a fact that should have been obvious much earlier. They all sound the same. Their sonic presence in the landscape is almost identical wherever they are. It may seem unremarkable, trivial even, but I now find it particularly significant in terms of the information that environmental sound provides to citizens. This relentless broad-range hum of massive extractors is increasingly heard elsewhere too. Industrial complexes, oil refineries, major corporate buildings in cities, even mega shopping malls, transmit a similar presence. It often goes with restricted access and the latest security. If one is looking for a sound that represents the underlying power behind today's global financial, industrial and military elites, then this is it. It is not necessarily loud, but constantly present—unchanging, featureless, soulless, utterly authoritarian and rarely touched by the small sounds of life. Sellafield has this par excellence. Recorded December 2007.



Waste water outlet pipe to the Irish Sea.



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Chernobyl

Anna Korolevskaya, Scientific Director at the Chernobyl Museum in Kiev, for her encouragement; Ulyana Gumeniuk for the major task of translating the conversations and poems from Ukrainian dialects; John Welch and Lessyk Chebanuk for help here too; Olena Chebanuk, folklore specialist at Kiev University, for her hospitality in Kiev. Olena also arranged for us to meet the villagers of Chernobyl in company with Oleksiy Dolya (Deputy Director of the Museum of Traditional Life and Architecture, Kiev) and photojournalist Mykola Semynog. Their expertise was essential to the success of these trips. And a special thanks to Misha Maltsev, friend and companion on both visits to Ukraine. Without his languages, understanding of ex-Soviet ways and much else, little would have been achieved.

Caspian Oil and UK sites

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CD CHERNOBYL, UKRAINE (37 TRACKS 74:18)

1 Radiometer 'hot spot', Kopachi (3:30); **2** Ferris wheel, Pripyat (2:47); **3** Power cable crackle (2:02); **4** Pripyat wind and chifffraff (1:49); **5** Kindergarten footsteps, Pripyat (1:05); **6** Cuckoo and radiometer, Pripyat (1:48); **7** Walking on glass bottles, Kindergarten, Pripyat (0:23); **8** 'Where should I look for you people?', Tsalko Svetlana (1:03); **9** Music room, Kindergarten, Pripyat (1:08); **10** Walking on books 1/radiometer, Kindergarten, Pripyat (1:23); **11** Walking on books 2, Kindergarten, Pripyat (1:27); **12** Hissy machine—Laundry, Pripyat (2:06); **13** Bar, Friday night, Chernobyl town (1:19); **14** Chernobyl nightingales, Chernobyl town (4:21); **15** Dawn chorus, Chernobyl town (4:43); **16** Woodfire, hens, early morning, Chernobyl town (1:47); **17** Horse and cart greeting, Lubianka village (1:09); **18** Turkey, Lubianka village (1:03); **19** Chernobyl evacuee's lament, Stovpyagi village (3:40); **20** 'Oh My Beloved Village', Stovpyagi village (3:08); **21** Sarcophagus work (3:45); **22** Power cable crackle 2 (1:33); **23** Summer grasshoppers, summer wind, Duminskoye village (1:19); **24** 'Three Cossacks', Duminskoye village (2:01); **25** 'How Can My Sweetheart Reject Me', Duminskoye village (1:28); **26** Wild boar (2:24); **27** White stork chicks screeching in the nest, Lychmany village (0:28); **28** White stork chicks, bill tapping, a distant song (1:01); **29** 'Copper Tubes', Lychmany village (1:24); **30** 'When You Are a Widow', Lychmany village (1:25); **31** Golden Oriole beside radioactive trucks/helicopters (2:56); **32** 'Quiet Conversation', Tsalko Svetlana (1:03); **33** Radiometer squeaky hinge, Opachichi village (1:06); **34** Squeaky hinge, Opachichi village (1:27); **35** 'Black Wing', Tsalko Svetlana (0:26); **36** 'Ukraine's Politicians', Tsalko Svetlana (0:35); **37** Chernobyl frogs (7:05)

CD CASPIAN OIL AND UK SITES (39 TRACKS 76:24)

Caspian Oil, Bibi Heybat, Azerbaijan: **1** Oilfield atmosphere (1:59); **2** Oil work tune 1 (0:39); **3** Oil work tune 2 (0:37); **4** Oilfield soundwalk 1 (7:09); **5** Oil work tune 3 (0:53); **6** Caspian Sea wash (1:38); **7** Drilling (2:07); **8** Nodding donkey extreme close-up (1:15); **9** Oilfield soundwalk 2 (8:00); Ichery Sheher, Baku, Azerbaijan: **10** Accordion, kids and a dog (1:47); **11** Nard from the window (0:58); **12** Narrow street atmosphere (1:02); **13** Reluctant piano (1:32); **14** Call to prayer/building work (5:44); Thetford Forest near RAF/USAF airbase, Lakenheath, UK: **15** Plane deer (5:52); Chernobyl fallout, Snowdonia, North Wales, UK: **16** Snowdonia Sheep (0:54); **17** River flow, Aled Isaf Reservoir (1:04); **18** Dragonfly wings (1:08); **19** Kids on holiday (2:22); **20** Radiometer sheep 1 (2:39); **21** 'Certainly by September 1986' (1:56); **22** Radiometer sheep 2 (3:01); **23** Official secrets (1:05); **24** Snowdonia woodland, Aled Isaf Reservoir (1:21); Domestic greenhouse gases, Uttlesford, UK: **25** Bell practice, Easyjet, SUV (2:41); **26** Picturesque Thaxted (1:38); Landfill waste gases, Rainham, UK: **27** Walking on landfill (0:44); **28** Methane flow 7 (0:25); **29** Methane flow 1 (0:15); **30** Methane flow 31 (0:15); **31** Methane flow 10 (0:24); **32** Landfill atmosphere, distant (1:35); Nuclear processing and power, UK: Bradwell, UK decommissioned nuclear power station: **33** Glistening mud surface (1:22); **34** Sea slosh in mud channels (1:20); **35** Swallow trapped in ancient church (1:51); **36** Bradwell beach (1:13); **37** Bradwell nuclear power station (1:28); Dungeness, UK: **38** Dungeness nuclear power station (1:30); Sellafield, UK: **39** Sellafield winter atmosphere (1:59)





SOUNDS FROM DANGEROUS PLACES

Caspian Oil and Gas Sites

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